

AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 10, line 8, as follows:

In a first embodiment, ions were implanted (or protons were irradiated) into a semiconductor layer at a peripheral region a given distance or more remote from a waveguide region of a bluish-purple LD under a given condition to break pn-junctions in the region or to allow ~~allowing~~ the semiconductor region to have no depletion layers, thereby converting that region into a higher resistance one (or into an insulation film). No depletion layers are formed and no pn-junction capacitance is generated in the insulative region formed into the insulation film. It is preferable in this case to allow a desired effect of reducing the capacitance of the element to be obtained by noticing a relation between a peak concentration of impurities and the distribution of the impurity concentration in the depth direction, and the effect of reducing the capacitance of the element. The insulative region has a withstand voltage of, for example, 10V or more.

Please amend the paragraph beginning at page 12, line 22, as follows:

An insulative region 1, ~~region 1~~ for reducing the capacitance of the element, ~~element~~ is formed in this embodiment by converting the region into a higher resistance one by ion implantation into a peripheral region a given distance or more remote from the waveguide region. Since the ions are implanted before forming the embedded insulation film 220, it is possible to form the insulative region 1 having a desired distribution of the impurity concentration in the depth direction with good controllability by appropriately controlling ion implantation conditions such as the dosage and acceleration voltage (depth of implantation). The ion species available include aluminum (Al), indium (In), boron (B), oxygen (O), nitrogen (N), hydrogen (H), phosphor (P) and antimony (Sn), wherein the insulative region 1 for reducing the capacitance of

the element has either a leakage light absorbing function as disclosed in patent document 2 (such as Al), or lower light absorption effect (such as B, O, N and H) depending on the ion species used.

Please amend the paragraph beginning at page 15, line 11, as follows:

It is instructive ~~preferable~~ to notice the relation between the peak impurity concentration and the distribution of the impurity concentration in the depth direction in the insulative region 1, and the effect of reducing the capacitance of the element in order to obtain a desired effect of reducing the capacitance of the element. Accordingly, ion implantation is devised so that ions are implanted several times by changing, for example, the acceleration voltage in order to obtain a desired effect of reducing the capacitance of the element. This enables the capacitance of the LD element to be largely reduced, thereby complying with the requirement of high-speed response as will be described hereinafter.

Please amend the paragraph beginning at page 17, line 13, as follows:

When ions are implanted ~~implanted in plural times~~ (for example, three times), the acceleration voltage may be changed to 30 KeV, 45 KeV or 60 KeV for each implantation at a dosage of 1×10^{16} atoms/cm² in order to permit the insulative region 1 to acquire a light absorption effect and a light confinement effect. It is also possible to adjust the refractive index with respect to the laser light by using different ion species for each ion implantation. Doping of In into the nitride film semiconductor permits the

refractive index to be increased, while doping of Al or B permits the refractive index to be decreased.

Please amend the paragraph beginning at page 21, line 3, as follows:

When the first electrode 230 is formed so as to cover a part of the surface of the embedded insulation film 220, on the other hand, the desired effect of reducing the capacitance of the element may be obtained by forming the insulative region 1 for reducing the capacitance of the element only in the region below the embedded insulation film 220. The desired effect of reducing the capacitance of the element may be also obtained by forming the insulative region by ion implantation only into the region below the first electrode 230 (indicated by 3 in FIG. 1~~the figure~~) on the surface of the embedded insulation film 220 of the peripheral regions a given distance or more remote from the waveguide region.

Please amend the paragraph beginning at page 42, line 4, as follows:

A terrace may be formed on the second main surface of the nitride semiconductor substrate. Forming the terrace permits an inclined face other than the (000-1) plane to plane~~may be exposed~~ when the second main surface is the (000-1) plane. For example, crystal plane indices indicating planes other than the (000-1) plane are not specified to one plane, but include (10-15), (10-14) and (11-24) planes. The inclined surface other than the (000-1) plane preferably occupies 0.5% or more, more preferably in the range from 1% or more to 20% or less, of the surface area showing n-

polarity.

Please amend the paragraph beginning at page 50, line 8, as follows:

The p-pad electrode 250 ~~electrode-205~~ may be also used as the metallized layer. The metallized layer comprises a material such as Ag, Au, Sn, In, Bi, Cu or Zn. The nitride semiconductor element having the face-down structure may be provided with good reproducibility by using the nitride semiconductor substrate. Reliability of the LD according to the fourth embodiment is excellent with good heat dissipating ability.